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Indian Standard

AIRCRAFT — ELECTRICAL CABLES AND CABLE HARNESSES — TERMINOLOGY

ICS 49.060

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

June 1998 Price Group 3

Aircraft Electrical Equipments Sectional Committee, TED 15

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Aircraft Electrical Equipments Sectional Committee had been approved by the Transport Engineering Division Council.

This standard brings the definitions of the various terms used in the field of aircraft electrical cables and harnesses. These definitions are in line with International Standard except there is slight difference between the terms used in aircraft industry and those given in IEC 461, which have wider application.

While preparing this standard assistance has been derived from ISO 8815 : 1994 'Aircraft — Electrical cables and cable harnesses — Vocabulary', issued by the International Organization for Standardization (ISO).

The committee responsible for the preparation of this standard is given in Annex A.

Indian Standard

AIRCRAFT — ELECTRICAL CABLES AND CABLE HARNESSES — TERMINOLOGY

1 SCOPE

This Indian Standard defines the terms used in the aircraft industry related to aircraft electric cables and cable harnesses.

2 TERMINOLOGY

The following terms shall be used, when specifying the construction, testing or use of aircraft electrical cable and cable harnesses.

No.	*Term*	*Definition*	*Non-preferred Term*
2.1	**Airframe Cable**	Cable suitable for open aircraft wiring and engine compartments without additional protection.	Airframe wire
2.2	**Bunch-stranded Conductor**	Conductor composed of strands twisted together with a given length and direction of lay in such manner that the respective wires at successive cross sections along the length of the conductor do not necessarily form a symmetrical geometric pattern, nor necessarily occupy the same positions relative to each other.	
2.3	**Cable**	Assembly consisting of conductor, insulation and sheath and, where applicable, screen and jacket.	
2.4	**Clad Strand**	Strand drawn from a composite of two metals, one surrounding the other.	
2.5	**Composite Conductor**	Conductor consisting of strands of differing type.	
2.6	**Concentric Lay Conductor**	Conductor constructed with a central core surrounded by one or more layers of helically laid strands.	
2.7	**Conductor**	Conducting element of a cable upon which electrical current ratings are based.	
2.8	**Conductor Cross-Sectional Area**	Sum of the cross-sectional areas of the component strands of the conductor.	
2.9	**Conductor Size**	Number used to define the cross-sectional area of the conductor. This number approximates to the 'Wire Gauge Number'.	

No.	*Term*	*Definition*	*Non-preferred Term*
2.10	**Conventional Concentric Conductor**	Conductor constructed with a central core surrounded by one or more layers of helically laid strands. The direction of lay is reversed in successive layers, and generally with an increase in length of lay for successive layers.	
2.11	**Core**	Assembly of a conductor and insulation which then form part of a complete single or multiconductor cable.	
2.12	**Data Bus Cable**	Data bus cables are designed to specific requirements which will not, as a general principle, allow for replacement by any other type other than that specified by the approving authority for the installation.	
2.13	**Dielectric**	Material surrounding the conductor which provides the required level of electrical insulation.	
2.14	**Direction of Lay**	Direction of rotation of a core, tape or strand in relation to the longitudinal axis of a cable. When the cable or stranded conductor is held vertically, the direction of lay is deemed to be right hand when the slope is in the direction of the central part of the letter Z or left hand when the slope is in the direction of the central part of the letter N.	
2.15	**Drip Loop**	Deliberate downward looping of cables at the entry to a connector to avoid ingress of fluids.	
2.16	**Equilay Conductor**	Conductor constructed with a central core surrounded by more than one layer of helically laid wires, all layers having a common length of lay. The direction of lay being reversed in successive layers.	
2.17	**Equipment Cable**	Cable suitable for use in protected areas such as equipment assemblies.	Hookup wire
2.18	**Fillers**	Materials used to fill the interstices between the cores of multicore cables.	
2.19	**Flexible Conductor**	Conductor having a stranded construction primarily designed for flexibility.	

No.	*Term*	*Definition*	*Non-preferred Term*
2.20	**Harness, Electrical**	Assembly of terminated cable complete with fittings.	Cable assembly
2.21	**Insulation**	Part of the cable surrounding the conductor consisting of dielectric material.	
2.22	**Interconnect Cable**	Cable suitable for use in protective areas of wiring, such as interconnection of equipment with racks or behind panels or bulkheads.	Interconnect wire
2.23	**Jacket**	External covering of a multicore unscreened cable or a single or multicore screened cable.	Sheath
2.24	**Lay Ratio**	Ratio of the lay length to the maximum diameter of each lay.	Lay factor
2.25	**Lead**	Single cable of finite length terminated by end fittings.	
2.26	**Length of Lay**	Axial length of one complete turn of any helicoidal element such as core, tape or strands.	Lay length
2.27	**Multicore Cable**	Cable consisting of two or more cores and/or other elements laid together helically, covered by a jacket and optional outer screen.	
2.28	**Plated Strand**	Strand which is covered with a thin metallic coating in order to improve the performance or termination.	
2.29	**Rating**	Values assigned to a cable to define its operation under specified conditions, for example, rated voltage, rated current and rated temperature.	
2.30	**Rope-Lay Conductor**	Conductor constructed of a bunch-stranded or a concentric-stranded member or members, as a central core, around which are laid one or more helical layers of such members.	
2.31	**Screen**	Conductive covering applied over the cable or cores to reduce the electro-magnetic and electrostatic interference.	Shield
2.32	**Screened Cable**	Cable having a screen	
2.33	**Screened and Jacketed Cable**	Screened cable having an overall jacket.	Screened and sheathed cable
2.34	**Sheath**	Protective covering added to the core, where required to improve its mechanical or fluid resistive properties. May also be added to provide a suitable surface for printing.	

No.	Term	Definition	Non-preferred Term
2.35	**Solid Conductor**	Conductor consisting of a single strand.	Wire
2.36	**Strand**	Cylindrical metallic element of uniform cross-sectional area used to form the conductor, braid or spiral screen of a shielded cable.	Wire, core
2.37	**Stranded Conductor**	Conductor consisting of a number of individual strands laid up together.	
2.38	**Unidirectional Conductor**	Conductor constructed with central core surrounded by more than one layer of helically laid wires. All layers having a common direction of lay with increase in length of lay for each successive layer.	
2.39	**Unilay Conductor**	Conductor constructed with a central core surrounded by more than one layer of helically laid wires. All layers having a common length and direction of lay.	
2.40	**Unplated Strand**	Strand consisting of the basic metal or metal alloy without any additional metallic coating.	
2.41	**Wicking**	Absorption of fluids within cables or looms by capillary action.	

ANNEX A

(Foreword)

COMMITTEE COMPOSITION

Aircraft Electrical Equipment Sectional Committee, TED 15

Chairman	*Representing*
Gr Cap S. B. Sharma	Director General of Aeronautical Quality Assurance (DGAQA), New Delhi
Members	
Shri J. M. Rewalliwar (*Alternate* to Gr Cap S. B. Sharma)	
Dr D. R. Arora	Hindustan Aeronautics Ltd, Korwa
Shri Z. A. Asif Shri S. P. Bhattacharye (*Alternate*)	Hindustan Aeronautics Ltd, Lucknow
Shri S. K. Bharij Shri K. K. Sinha (*Alternate*)	Department of Industrial Development, New Delhi
Sqn Ldr N. K. Dubey Sqn Ldr P. S. R. Nair (*Alternate*)	Directorate of Engg Support, Air Headquarters, New Delhi
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Shri S. K. Kapur Shri Yashvir Kumar (*Alternate*)	Indian Airlines, New Delhi
Shri Madan Mohan Shri S. K. Garg (*Alternate*)	Air India, Bombay
Manager (Designs Elec. Sys) Manager [Designs Avionics] (*Alternate*)	Hindustan Aeronautics Ltd, Nasik
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Shri A. R. Gulati, Director (Transport Engineering)	Director General, BIS (*Ex-officio Member*)

Member Secretary

Shri M. L. Chopra
Director (Transport Engineering), BIS

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